

# FALLING GRADE

With support for graduate students at a breaking point, Canadian universities are feeling the impact

# SITUATION D'ÉCHEC

Les universités canadiennes ressentent les contrecoups de l'insuffisant soutien aux étudiant.e.s des cycles supérieurs





As a result, they have not kept pace with increases to the cost of living nor with research trainee compensation trends around the world. This situation has significantly eroded Canada's position as a global hub for the attraction and retention of research-enabled talent, and this erosion will be accelerated by the increase in investments by our global peers."

The report's conclusions are nothing new to Dr. Baskaran or graduate students in her circle. "I don't think people see the cracks yet," she says. "But we are seeing the cracks. We're hearing about our friends who live away, who are leaving science. We see the number of people who are actually continuing to do research within our cohorts, and we see that it's not that many people."

Sarah Laframboise, a PhD student in biochemistry at the University of Ottawa, has also witnessed the migration of young talent firsthand. "In my lab, essentially right now, I'm the only person in the last 10 years that has stayed in Canada," she says. "I would say the main reason that they've all moved is for the funding." For her part, Ms. Laframboise has decided not to continue onto a postdoctoral fellowship – in Canada or abroad – for both personal and professional reasons, not least of which includes accumulating approximately \$100,000 in debt. "I've just hit a point financially where I just can't continue on in academia, so I'll be transitioning into probably government or government-adjacent policy work."

Understanding how many graduate students, postdoctoral fellows and early career researchers choose to leave Canada – or academia entirely – is complicated. Marc Johnson, a professor in biology at the University of Toronto and chair of the advocacy organization Support our Science, notes that "the challenge is that Stats Canada and individual universities don't quantify who's leaving. And so, [the data] relies on independent researchers deciding to kind of tackle these issues."

**W**HILE FINISHING HER PhD last year, Sivani Baskaran was faced with a common dilemma: continue on in academia or move to the private sector. With student loans from her undergraduate degree and very little in savings after six years of graduate school, the financial implications weighed heavily. She factored in the typical postgraduate stipend of \$45,000 and says, "It didn't seem to be financially feasible for me."

Dr. Baskaran, at the time an environmental chemistry PhD candidate at the University of Toronto, decided to look outside of academia for the next phase of her life. "I wasn't looking for anything in science because I thought this doesn't make sense. So, I was fully applying for positions within the policy world and trying to get my feet in the door." Then, an opportunity arose.

"The research was exactly what I wanted to be doing. The pay was reasonable, quite reasonable," says Dr. Baskaran. But there was a catch. It was in Norway. "So, I was like, okay, I'm either not staying in science, or I was going to have to go abroad." She applied and is now in the second year of a postdoctoral fellowship at the Norwegian Geotechnical Institute.

While Dr. Baskaran's situation isn't necessarily unique, some worry that it may be becoming all too common. In October 2022, the Advisory Panel on the Federal Research Funding Support System was established with the task of providing the federal government advice on the structure and governance of the federal system supporting research and talent. Chaired by Université de Montréal's Frédéric Bouchard, its report was published in March 2023 and includes 21 recommendations ranging from establishing a new Canadian Knowledge and Science Foundation to increasing funding for the granting councils to strengthening equity, diversity and inclusion. The report emphasizes however, that without reinvestment and given the international competition for talent, Canada is at serious risk of another brain drain: "It is also clear to the panel that current support for graduate students, the researchers of tomorrow, is at a breaking point. The values of the government's awards for university research trainees have remained virtually stagnant for the past 20 years.

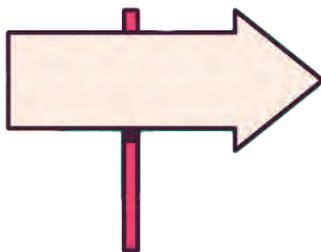
**"They realize they're going to be paid poorly and they're not going to be able to afford to live in one of Canada's top two most expensive cities."**

One study that looked at the issue came from the McGill-led TRaCE (Track, Report, Connect, Exchange) project. The TRaCE 2.0 report was published in 2019 and tracked 1,818 graduates in the humanities, social sciences and fine arts from eight Canadian universities. Its objective was to develop quantitative and qualitative evidence about the career paths of PhD graduates. The study found that 34 per cent of the graduates surveyed were working outside of higher education. It also found that 38 per cent of the graduates were living outside of Canada – 21 per cent in the United States and 17 per cent in another country. It should be noted that the study didn't include data on where the graduates were originally from.

"It's unclear what that number should be," admits Dr. Johnson. "Clearly, some people are going to leave, and some people are going to come. But I think that when more than [one third] of all the PhDs that we've just trained for the last five to six years are leaving the country immediately, I think that sends alarm bells, especially when that was 2019 [...] before the pandemic and inflationary crisis that we're having right now," he says.

Dr. Johnson has personal experience with the impact of the drain of early career research talent. Three out of his last four PhD students have left the country "and I think there's very little opportunity to get them back," he laments. He is also experiencing challenges attracting students to his lab. "I'm trying to attract the brightest minds from Canada and from around the world, and I can no longer compete with Harvard, Cambridge or Oxford, whereas before I was able to kind of steal students away from those places," he says. "They realize they're going to be paid poorly and they're not going to be able to afford to live in one of Canada's top two most expensive cities," he adds. "I'm having to take on fewer students and postdocs as a result of it. And ultimately, it's negatively influencing the productivity from my research laboratory, and I have one of the top laboratories for what we study in the world."

As researchers grapple with these challenges, some are turning to university administration for support. "I think our researchers are looking for somebody to fill the gap. So, for example, if there isn't enough federal funding for graduate students, then our faculty come to me," says Lisa Kalynchuk, vice-president of research and innovation at the University of Victoria. "It's putting a lot of pressure on universities to try to find those internal funds at a time when our revenues are soft," she says.



Universities and research organizations do share some of the responsibility to support postdocs, insists Dr. Kalynchuk. "For our postdocs, for example, making them employees of the university gives them full benefits," she says. "It also contributes to our commitments in equity and diversity because it means that postdocs who are pregnant or have a child get access to parental benefits, and that's huge for them."

For Matthew Berg, who completed his PhD in biochemistry at Western University in 2021, the decision to carry on in academia was clearer than for the others. "I've always had the dream of being a professor," he says. "I knew that I had to do a postdoc to get the experience to set myself up for that." He looked at some of the larger Canadian universities such as UBC and University of Toronto, but "knew that the cost of living was crazy and then you look at the stipends that postdocs get," he says. "I don't even know if you're breaking even in some of those big cities." Today, Dr. Berg is a postdoctoral research fellow in the department of genome sciences at the University of Washington, in the United States.

At UW, postdoctoral fellows are considered salaried employees, which guarantees them at least US\$65,000/year. That salary is expected to rise by a minimum of 4.5 per cent next year. Dr. Berg says that while personal financial considerations were a factor in his decision, there were others. He saw the benefits of gaining international training and the difference in available resources. "I had visited there for two weeks during my PhD as a collaboration and seeing the resources that they had was amazing," he says. "I think the resources available make collaborations a lot more fruitful. In Canada, you need to collaborate because there's not enough money and you need other people's resources to put something together. Here we're collaborating because people have different expertise and ideas." Ultimately, he made the decision based on "where I thought I could be successful doing something that I could pick up a skill and was interested in," he says. "The University of Washington was a good fit that way and I just didn't find anything like that for me in Canada."

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Support Our Science is advocating for improved pay for graduate students and postdoctoral scholars in Canada. In addition to her doctoral work, Ms. Laframboise serves as the organization’s executive director. She says the organization has focused its efforts on the federal government mainly because federal scholarships set the standard for what is considered adequate pay for graduate students and postdoctoral scholars.

Support Our Science is pushing for four key funding increases: an increase in the value of Tri-Agency graduate scholarships and postdoctoral fellowships by 50 per cent, subsequently linked to inflation; an increase in the number of Tri-Agency graduate student scholarships by 50 per cent; an increase in the number of Tri-Agency postdoctoral fellowships by 100 per cent; and an increase in the Tri-Agency research grant budget provided to faculty by at least 10 per cent per year for the next five years, to allow for increased graduate student and postdoctoral pay.

“It’s a really big ask,” admits Ms. Laframboise. However, she notes for the scholarship and fellowship increase, for example, the recommended increase barely accounts for inflation since 2003. “So realistically, if it was indexed that whole time, we’re just asking for that amount.”

On an international scale, Canada lags significantly behind other countries in terms of spending on research and development. According to a Statistics Canada report earlier this year, Canada’s R&D intensity ratio of 1.8 is below the Organisation for Economic Co-Operation and Development’s average of 2.7, placing it 17th compared to other countries. When compared to G7 countries, Canada ranks second to last among the six countries for which data are available.

“In the future, to be globally competitive you need to have a knowledge-based economy,” says Dr. Kalynchuk. “Those are higher paying jobs. They’re jobs that attract more talent and they position the country well by international standards. Training our own graduate students is one of the quickest ways to get Canada into a place of having a competitive knowledge-based economy,” she says. “This is going to sound like a cliché, but it also stimulates innovation.”

Despite graduate and postdoctoral research funding being left out of Budget 2023 this spring, Ms. Laframboise still hopes there will be support coming from the federal government soon. “I really hope that, in the fall economic update, we get the scholarships and fellowships ask,” she says. “Then I’m really hoping that in Budget 2024, we’ll get a larger increase into the granting councils’ budgets to supplement those grants for supervisors,” but she admits, “I have my hesitations.”

A spokesperson from Innovation, Science and Economic Development Canada said they could not comment on past or ongoing budget processes, but that “the government remains committed to investing in Canadian research and is focused on how it can continue to support Canada’s world-class researchers, scientists and students. Since 2016, the government has provided a historic level of support for science and research, investing more than \$16 billion across the research ecosystem.”

“I think people have to realize that most of the innovation, most of the discovery in Canada happens at universities, not in big companies, and it’s done by graduate students and postdocs,” counters Dr. Johnson. “The most important issue in Canadian research and development is funding graduate students and postdocs to an appropriate internationally competitive level – and I really hope that I don’t have to say this again next year.”

For those already overseas, contemplation around when and if they return to Canada can weigh heavily. “I want to and that’s my goal,” says Dr. Baskaran. “But again, I’m trying to figure out how much do I leave research behind if I come back and whether I’m ready to do that.”

Dr. Berg finds himself in a similar quandary. “I think it starts out as the idea: I’m just going to go somewhere abroad to gain more skills, or this is a temporary training period and I’ll come back. And I think when people go abroad and they see what opportunities are available out there, there’s less incentive to come back,” he says. “And they’re going to stay. So, I am worried about research in Canada.” **UA**

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